MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

BDS3014 – DECISION SUPPORT SYSTEMS FOR KNOWLEDGE MANAGEMENT
(All Sections/Groups)

14 MARCH 2020
2.30 p.m - 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 4 pages with 2 parts only.

2. Attempt **ALL** questions in Part A and Part B. The distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

PART A: CASE STUDY QUESTION

CASE STUDY: EXPLORING RADIO FREQUENCY IDENTIFICATION TECHNOLOGY'S APPLICATION IN INTERNATIONAL DISTRIBUTION CENTERS AND ADOPTION RATE FORECASTING.

Radio Frequency Identification Technology (RFID) is a generic technology concept that refers to the use of radio waves to identify objects. The RFID technology enables automatic data capture, data identification, and information interchanges, making it more efficient for merchandise tracking, product sorting, and distribution data collection and analysis as a result of its use. In addition, RFID is implemented for a wide variety of applications, including building access control proximity cards to supply chain tracking, toll collection, vehicle parking access control, retail stock management, ski lift access, tracking library books, theft prevention, vehicle immobilized systems, railway rolling stock identification, and movement tracking.

International distribution centers (IDCs) provide a number of service attributes to shippers, such as storage, cargo tracking, customs clearance, consolidation, packaging, labeling, assembly, and documentation services. An IDC could be defined as a place that integrates the operations of manufacturing with land, sea, air transportation, storage, port, and customs operations in order to achieve the efficient distribution of commodities in the global supply chain. The role of IDC as a home base for merchandise transportation and distribution has consequently become increasingly important in supply chain management.

Growth in cargo throughput in the past has served as one of the essential objectives for IDCs. In the future, IDCs can focus not only on the growth in cargo throughput served, but also in the diversification of logistics service provided for customers to gain more revenue. Therefore, IDCs should attempt to alter their role to create more value-added logistics services for customers for example RFID can increase goods trackability. RFID technology can provide logistics companies with better quality control, financial management, and profitability. The benefits for enterprises implementing RFID technology are excessive inventory prevention and logistic operations' labor force reduction. This enables efficient and accurate item identity and quantity verifications under the just in time philosophy. RFID technology can also minimize goods theft and human error. Investing in new information technology, IDCs can expect new technology to contribute to operation performances such as reduce order processing time, reduce storage operation time and cost. Moreover, RFID can provide IDC's managers with real-time data collection and information sharing for decision making. Therefore, it is important for managers of IDCs and designers of RFID to understand and predict system user acceptance if IDCs adopt RFID.

Previous literature on RFID deployments concentrated mostly on the analysis of RFID advantages, efficiency, challenges to RFID adoption, cost effectiveness, and RFID technology trends forecasting. Some studies also focused on RFID technical improvement to increase its applicability. The introduction of a new technology requires a trial period

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for user familiarity, and user resistance to adopting new technology should also be considered. Relatively little previous research has employed a systematic approach to investigate the RFID adoption perceived by IDC. Therefore, this study attempts to examine crucial factors affecting RFID's user intention by IDCs.

(Adapted from: Cheng, Y.-H. & Yeh, Y.-J. (2016). Exploring radio frequency identification technology's application in international distribution centers and adoption rate forecasting. *Technological Forecasting & Social Change, 78*(2011), *661-673*)

QUESTION 1

Define Radio Frequency Identification (RFID) and describe **THREE (3)** components to set up a RFID system.   (8 marks)

QUESTION 2

Differentiate active and passive RFID tag.   (10 marks)

QUESTION 3

Discuss **SIX (6)** benefits of implementing RFID technology in an International Distribution Center (IDC).   (12 marks)

QUESTION 4

An IDC would like to integrate the RFID application with another enterprise system. The management is thinking to develop the system in-house using a prototype approach. Advise IDC's management about the critical success factors in prototyping.   (10 marks)

(Total: 40 marks)

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PART B: STRUCTURED QUESTIONS

QUESTION 1

(a) Alter (2004), a DSS pioneer, proposed that decision support may come from different aspects of work systems. Define "work system" and describe **FIVE (5)** elements of a work system.   (12 marks)

(b) Homey is a company that buys houses and rents them to tenants. Homey has decided to buy some new houses. The management of Homey will decide which house to buy using Herbert Simon's (1977) four-phase decision making model. Outline the actions/activities the management might take in each of the **FOUR (4)** phases when making this decision.   (8 marks)

(c) Compare the features and structure of the Model Base Management System (MBMS) to those of the Database Management System (DBMS).   (5 marks)

(d) What recent factors have increased the popularity of data mining?   (5 marks)

(Total: 30 marks)

Question 2

(a) Madam Kay Joo is the owner of Baker K. The bakery's storage room has limited space to store the variety of buns. Each week the bakery has its own main customer orders. Madam Kay Joo wants to know the quantity to bake for each type of buns per week in order to make most profit and ensure the requirements of the bakery's main customer are met.

You used Microsoft Excel's Solver to work out the solution. Now, you are required to analyze and interpret the Solver Report to her. (10 marks)

Objective Cell (Value Of)

Cell	Name	Original Value	Final Value
$E$8	TOTAL BUNS BAKED HOW MANY TO BAKE?	100	800

Variable Cells

Cell	Name	Original Value	Final Value	Integer
$E$3	HOTDOG HOW MANY TO BAKE?	10	187	Integer
$E$4	TUNA HOW MANY TO BAKE?	20	207	Integer
$E$5	CHEESE HOW MANY TO BAKE?	30	168	Integer
$E$6	OTAK HOW MANY TO BAKE?	40	238	Integer

Constraints

Cell	Name	Cell Value	Formula	Status	Slack
$E$8	TOTAL BUNS BAKED HOW MANY TO BAKE?	800	$E$8=800	Binding	0
$E$3	HOTDOG HOW MANY TO BAKE?	187	$E$3>=100	Not Binding	87
$E$4	TUNA HOW MANY TO BAKE?	207	$E$4>=120	Not Binding	87
$E$5	CHEESE HOW MANY TO BAKE?	168	$E$5>=80	Not Binding	88
$E$6	OTAK HOW MANY TO BAKE?	238	$E$6>=150	Not Binding	88
$E$3:$E$6=Integer					

(b) Identify **THREE (3)** Group Support System (GSS) enabling technologies. Explain **ONE advantage** and **ONE disadvantage** of each. (9 marks)

(c) Do you agree with the statement that using speech communication (i.e. speech recognition technology) as the user interface could increase people's willingness to use expert system? Why or why not? Justify your answer. (11 marks)

(Total: 30 marks)

End of Paper.